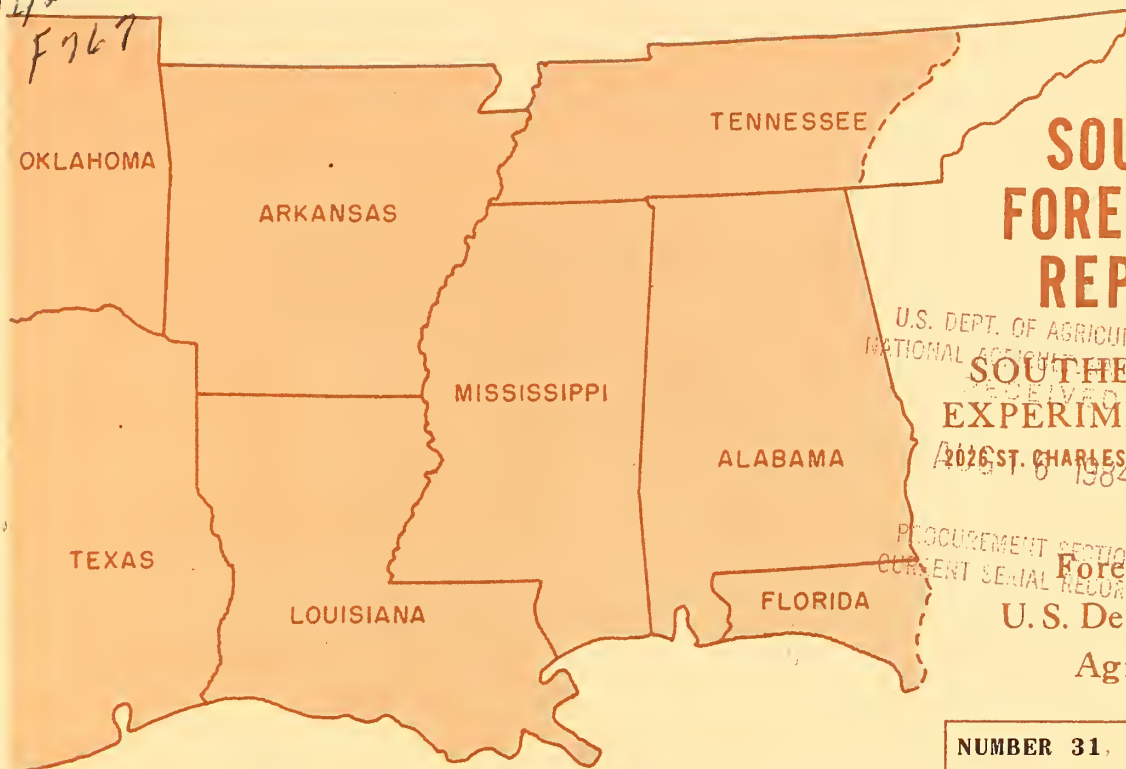


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SOUTHERN FOREST PEST REPORTER

U.S. DEPT. OF AGRICULTURAL
FOREST SERVICE
SOUTHERN FOREST
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.... SOUTHERN PINE BEETLE ACTIVITY FINALLY SLOWING IN EAST TEXAS, where an estimated 10 million board feet of sawtimber and 30,000 cords of pulpwood were killed in spite of an aggressive control program.

.... CONTINUED ACTIVITY OF THE BLACK TURPENTINE BEETLE SOUTHWIDE is associated with logging practices and extremes in soil-moisture relationships.

.... NEODIPRION EXCITANS SAWFLY STILL ACTIVE IN EAST TEXAS, but no heavy or widespread defoliation is expected this year.

.... FOMES ANNOSUS ROOT ROT INCREASING IN IMPORTANCE as more plantations reach thinning stage.

FOREST INSECTS

Southern Pine Beetle

In southeast Texas, populations of the southern pine beetle, Dendroctonus frontalis, reached a peak in early summer but have now been reduced to a comparatively low level. The Texas Forest Service kept watch on the outbreak with biweekly flights over affected areas. To date, 504 spot infestations on about 30 ownerships have killed an estimated 10 million board feet of sawtimber and 30,000 cords of pulpwood. Aggressive, cooperative control by industry, the Texas Forest Service, and the U.S. Forest Service prevented losses from being much greater.

Two hundred and thirty spot kills were detected in June, and at the end of the month 199 spots, both old and new, were uncontrolled. Frequent and heavy June rains kept much of the area inaccessible and interfered with spray and salvage efforts. The situation grew more serious each day. Spots became so numerous that they were difficult to map, and intensity of observation had to be increased.

In July, 111 new infestations were located, and 144 spots were still uncontrolled. Rains continued, and many spots grew rapidly in size or combined to form larger ones of 100 acres or more. But control crews worked whenever ground conditions permitted, and by the end of the month the rate of increase of some infestations had slowed. By then, peripheral spread had almost stopped, and no new attacks were developing in the vicinity of older ones.

Twenty-two days of August were rainy. During the month, many more infestations became static or inactive. By late August, most of the east Texas outbreak appeared to be beyond the critical stage, except in Liberty County, where rapid development continued in some spots.

As controls continued and the outbreak died away, ground inspections by entomologists revealed three possible contributing causes to the rapid drop in beetle activity. First, tree stems contained much more resin and water than they did in the spring. Secondly, a pathogenic association was suggested by the fact that many larvae were found dead in bark tunnels that were lined with a green fungus (Trichoderma sp.). And last, the large numbers of small Tenebrionids and Anthocorids (probably Corticeus and Scoloposcelis spp., respectively) that were found in beetle infested areas are suspected of being predaceous, and could have caused the disappearance of many larvae and pupae from their cells.

The outbreak continued to decline in September. By the end of the month, 17 spots, only 2 of which contained over 100 brood trees, remained uncontrolled. This situation is better than last year at the same time, when 30 spots were uncontrolled. No new infestations were detected and regular inspection flights were discontinued.

Although the outbreaks has slowed, recent investigations indicate that some spots are still active enough to provide a source of future

infestations. Peripheral spread, or spotting out, into winter brood trees is likely if control is delayed past late fall.

Elsewhere in the Midsouth, no unusual activity of the southern pine beetle has been reported. In Alabama, occasional small spot kills continued to appear in stands that were overdense or on poor sites, but in most instances the beetles were not aggressive and were quickly controlled.

Black Turpentine Beetle

The black turpentine beetle, Dendroctonus terebrans, continued to be active on most National Forests and on many industrial ownerships Southwide. On the extensive low sites in parts of the Gulf States, pines are typically shallow-rooted and thus are strongly affected by extremes in soil-moisture relationships. The shallow root systems of these trees are highly susceptible to injury by logging machinery. Damage is particularly severe in stands disturbed successively by the removal of pine poles, sawtimber, and pulpwood, and the cutting of hardwoods, each in a separate operation.

One of many typical infestations that occurred during the summer developed on about 5,000 acres in central Louisiana. Here, sawtimber was removed last winter, but because of spring flooding and the apparent general scarcity of beetles, control was not considered feasible or necessary. By early fall, however, the site had become dry. The deep, hard-caked ruts of haul roads and the cypress knees protruding from the dust emphasized the extremes suffered by the stand. The trees undoubtedly had become weak and quite vulnerable to beetle attack. By September, most of the valuable trees left were heavily infested. Substantial losses are likely unless quick suppressive action is taken.

Although turpentine beetles chiefly attack pines on poorly drained clay soils, infestations can develop in sandhill country if conditions favor the beetles. Such a situation occurred in southwest Mississippi where residual stands growing on steep hills and gullies had been weakened by summer drought and careless logging. Greatest mechanical injury apparently was caused last winter when pine sawtimber was removed from the stand full-length and bucked at loading sites, but this operation was followed by a pulpwood cut and in June hardwoods were taken out. Considerable maneuvering was necessary to move the full-length pine timber and large hardwood logs across the steep sandy slopes. Many pines left for growing stock were skinned or girdled by cable winching. Tractors made deep ruts (especially on slopes), crushed roots, and churned the light soil. Bulldozers often had to help move the logging trucks during wet weather, and sometimes gouged temporary haul roads to a depth of several feet.

This disturbance, added to the extremely dry summer, brought heavy beetle infestations to almost all of the residual pines, many of which will surely die if dry conditions continue. When rains fall, soil torn up by logging will wash from roots of trees on ridges and slopes and cover those on lower sites. Whether the weather is dry or wet,

therefore, trees that are now lightly infested probably will become weaker and still more vulnerable.

These are almost classic examples of how logging and rainfall are often related to turpentine beetle infestations in the South. In such cases, controls, even though costly, will protect high-value trees at a fraction of their worth, and are therefore advisable.

Ips Bark Beetles

Despite late-winter ice damage in northern Louisiana and southern Arkansas, and a severe summer drought in parts of Louisiana and Mississippi, Ips beetles did not approach outbreak proportions. Infestations were mostly localized, being restricted to overdense stands, trees on poor sites, and the edge of burns.

Ips beetles were often associated with southern pine beetle activity in east Texas and Alabama. In Alabama it was difficult to determine which was primary. Here, Ips avulsus often first infested the crowns, thus weakening trees enough to bring on attacks by the southern pine beetle. The southern pine beetle apparently then reproduced in the lower stems in sufficient numbers to invade adjacent trees. In these new infestations, avulsus and sometimes other Ips species assumed a secondary role.

Pine Sawflies

No unusual defoliation by sawflies has been reported in recent months. General observations of Neodiprion excitans on industrial lands in east Texas indicated that feeding was widespread but spotty in southern Polk County and western Hardin County. Larval activity, which was first noticed this year in late July, had ceased by September, and the insects had spun cocoons in the soil. There was some evidence of egg-laying in the crowns of loblolly pine, but a heavy population increase this year is unlikely.

Southern Forest Insect Work Conference

The Fifth Annual Southern Forest Insect Work Conference will be held at the Dempsey Motor Hotel at Macon, Georgia, December 6-8, 1960.

FOREST DISEASES

Fomes Annosus Root Rot

Fomes annosus root rot is considered the number one disease problem of coniferous plantations in Europe. The causal fungus is also native to--and widely distributed in--the United States. Consequently, many foresters are concerned about possible losses to the disease in the

millions of acres of southern pine planted during the past few decades. How many plantations will be attacked? How heavy will losses be? Can we predict which plantations will be most susceptible? Are there any practical control measures? Positive answers must await further research and experience. The following is a summary of current, and admittedly inadequate, knowledge of root rot of southern pine.

How can root rot be detected? --Root rot is usually unnoticed until a tree dies. True, a year before death a pine may have thin foliage, short needles, and slight chlorosis, but these symptoms are not always present and often are inconspicuous. Beetles may attack dying trees, and care is needed to distinguish between root-rot and insect kill. The fruiting bodies of Fomes frequently develop on or near trees which have been recently killed, either at their bases, on exposed roots, or in the surrounding duff. These conks are inconspicuous and usually hidden under the duff. Conks are irregular in shape, up to three inches across. Their upper surface is grayish-brown, either light or dark. The under surface is white to tan, and contains many minute pores.

Fruiting bodies often are present on or around live trees that are standing near infected stumps or recently killed trees. Infected roots first develop a resin-soaked appearance or pinkish to dull violet sapwood. Later, elongate white decay pockets develop in roots, leading to the final stringy white rot which is distinct from the usual brown rot in roots killed by most other causes.

How does root rot attack? --Almost all attack originates with thinning. The spores, which may be present in the air, infect freshly cut stump surfaces. The fungus then spreads down the stump and out along the roots to infect adjacent trees whose roots touch or are grafted to those of the stump. Mortality may begin two or three years after the first thinning. Whenever pines die a few years after thinning, root rot should be suspected. In Europe, mortality is most common in young stands; later attack shows up mostly as butt rot. Whether this will be the pattern with southern pines is not known.

What pines are attacked? --Root rot mortality has been found with all species of southern pine except spruce pine. Serious losses have occurred in both slash and loblolly plantations, but slash pine appears more susceptible to important damage.

Where does root rot occur? --Fomes annosus root rot has been found in most of the southern States. So far, almost all known serious attack in the Midsouth has been in plantations outside the normal planting range of the species concerned. Attack is known on slash pine on good sites near its natural range, however, and it would be premature to suggest that important attack on any species will be limited to particular geographical areas or sites.

Mortality from root rot occurs in both natural and planted stands, but both frequency and intensity of attack are much greater in plantations. Fomes annosus root rot is most serious in thinned plantations.

Can root rot be controlled? --The British report good protection by copiously treating the stump with coal-tar creosote immediately after felling a tree. All exposed wood, including debarked areas, must be treated. The creosote prevents invasion by F. annosus but permits colonization of the stump by other fungi antagonistic to it.

The effectiveness or necessity of this treatment under southern conditions is not yet known. At present, stump creosoting is recommended only for individual stands of high value.

A planned root-rot survey. --In the near future the U.S. Forest Service will begin a survey of F. annosus on southern pines. This will be a cooperative project by the Northeastern, Southeastern, and Southern Forest Experiment Stations, and will include the entire range of southern pines from New Jersey to Texas. The occurrence of root rot and the amount of damage will be correlated with pine species, geographical location, and various soil, site, and stand factors. The survey will give a much better understanding of the importance of root rot in southern pines under different conditions.

There is little doubt that F. annosus root rot is increasing in importance as more plantations reach the thinning stage. In the Midsouth, there is no evidence so far that it will be as general or as destructive as fusiform rust.

New Publication

A 17-page booklet on wood rot in houses, describing causes, safeguards, and remedies, is available from the Southern Forest Experiment Station. The pamphlet is U.S. Department of Agriculture Home and Garden Bulletin 73, "Wood Decay in Houses, How to Prevent and Control It."